

Applicant: Gil La Vean
Application No.: 09/653,057

IN THE CLAIMS

1 - 31. (Canceled).

32. (Currently Amended) A method for geographically locating a mobile terminal within a wireless CDMA communication system having base stations with fixed locations, the method comprising:

transmitting from a plurality of base stations a first spread spectrum signal having an associated code;

receiving of the first spread spectrum signals transmitted by said plurality of base stations at the mobile terminal;

for each received first spread spectrum signal, transmitting a second spread spectrum signal having an associated code time synchronized with that received first spread spectrum signal from the mobile terminal to said plurality of base stations, wherein the synchronizing of the associated code of the second spread spectrum signal with that received first spread spectrum signal is by despreading that received first spread spectrum signal using the associated code of the first spread spectrum signal, processing that despread received first spread spectrum signal by a delay lock loop, and adjusting a timing of the associated code of the first spread spectrum signal used for despreading and a clock pulse in response to the delay lock loop, and adjusting a timing of the associated code of the second spread

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spectrum signal in response to the adjusted timing of the clock pulse and the associated code of the first spread spectrum signal;

receiving the second spread spectrum signals at the plurality of base stations;

determining a delay between each base station and the mobile terminal based on in part a received timing of the second signals, wherein the determining a delay between each base station and the mobile terminal is by despreading that received second spread spectrum signal using the associated code of the second spread spectrum signal, processing that despread received second spread spectrum signal by a delay lock loop, and adjusting a timing of the associated code of the second spread spectrum signal used for despreading in response to the delay lock loop, and comparing a timing of the time adjusted associated code of the second spread spectrum signal and the associated code of the first spread spectrum signal; and

determining the mobile terminal's geographic location based on in part round trip delay information between the mobile terminal and each base station of signals transmitted between the mobile terminal and the respective base stations.

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33. (Previously Presented) The method of claim 32 wherein the determining of the mobile terminal's geographic location is performed at the mobile terminal.

34. (Previously Presented) The method of claim 32 wherein the base stations are time synchronized with each other.

35. (Previously Presented) The method of claim 33 further comprising each base station transmits the determined delay between the mobile terminal and that base station.

36. (Previously Presented) The method of claim 35 further comprising the mobile terminal receiving the transmitted determined delays.

37. (Currently Amended) A mobile terminal for use in a wireless CDMA communication system having a plurality of base stations, each base station transmitting a first spread spectrum signal having an associated code, the mobile terminal comprising:

means for receiving the first spread spectrum signals transmitted by said plurality of base stations at the mobile terminal;

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means for each received first spread spectrum signal, transmitting a second spread spectrum signal to said plurality of base stations having an associated code time synchronized with that received first spread spectrum signal, whereby enabling each base station to make a delay determination, wherein the synchronizing of the associated code of the second spread spectrum signal with that received first spread spectrum signal is by despreading that received first spread spectrum signal using the associated code of the first spread spectrum signal, processing that despread received first spread spectrum signal by a delay lock loop, and adjusting a timing of the associated code of the first spread spectrum signal used for despreading and a clock pulse in response to the delay lock loop, and adjusting a timing of the associated code of the second spread spectrum signal in response to the adjusted timing of the clock pulse and the associated code of the first spread spectrum signal;

means for receiving the delay determination from each base station; and

means for determining the mobile terminal's geographic location based on in part round trip delay information between the mobile terminal and each base station of signals transmitted between the mobile terminal and the respective base stations.

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38. (Previously Presented) The mobile terminal of claim 37 wherein the first and second spread spectrum signals are pilot signals.

39. (Currently Amended) A wireless CDMA system for geographically locating a mobile terminal, the system comprising:

 a plurality of base stations with fixed locations, each base station comprising:

 means for transmitting a first spread spectrum signal having an associated code;

 means for receiving a second spread spectrum signal having an associated code transmitted by said plurality of base stations;

 means for determining a delay between the mobile terminal and that base station based on in part a received timing of the received second signal from the mobile terminal to said plurality of base stations; and

 means for transmitting the delay determination to the mobile terminal; and

 the mobile terminal comprising:

 means for receiving the first spread spectrum signals at the mobile terminal;

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means for each received first spread spectrum signal, transmitting the second spread spectrum signal having its associated code time synchronized with that received first spread spectrum signal, wherein the synchronizing of the associated code of the second spread spectrum signal with that received first spread spectrum signal is by despreading that received first spread spectrum signal using the associated code of the first spread spectrum signal, processing that despread received first spread spectrum signal by a delay lock loop, and adjusting a timing of the associated code of the first spread spectrum signal used for despreading and a clock pulse in response to the delay lock loop, and adjusting a timing of the associated code of the second spread spectrum signal in response to the adjusted timing of the clock pulse and the associated code of the first spread spectrum signal;

means for receiving the delay determination from each base station; and

means for determining the mobile terminal's geographic location based on in part round trip delay information of signals transmitted between the mobile terminal and the respective base stations.

40. (Previously Added) The system of claim 39 wherein the base stations are time synchronized with each other.